

Hooded Warbler (*Setophaga citrina*) Species Guidance

Family: Parulidae – the wood-warblers

State Status: [Threatened](#) (1989)

State Rank: [S2S3B](#)

Federal Status: [None](#)

Global Rank: [G5](#)

Wildlife Action Plan
Mean Risk Score: [3.3](#)

Wildlife Action Plan Area
Importance Score: [2](#)



Counties with documented locations of Hooded Warbler breeding or breeding evidence in Wisconsin. Source: Natural Heritage Inventory Database, August 2012.



Photo by Lana Hays

Species Information

General Description: The Hooded Warbler is approximately 13 cm (5.1 in) long, with olive-green upperparts, bright yellow underparts, and white outer tail feathers. All individuals show a dark loreal spot and large dark eye. Adult males have a bright yellow face encircled by a black hood and bib. Adult females have a plain yellow face with an olive crown and nape. Some females have a variable amount of black on the head, ranging from a border around the face to an entirely black crown and breast. Plumages are similar throughout the year. Immature males resemble adult males but have more extensive olive to yellow tipping on their black hood feathers. Immature females resemble adult females but with little to no black on the crown and throat (Howell and Webb 1995, Dunn and Garrett 1997, Dunn and Alderfer 2006).

The song is composed of 4-5 musical notes, often with the last note strongly emphasized: *ta-wit ta-wit ta-wit TEE-yo*. The call is a loud, metallic *chink* (Howell and Webb 1995, Dunn and Garrett 1997, Dunn and Alderfer 2006). An example of a typical song can be heard here: http://www.allaboutbirds.org/guide/Hooded_Warbler/sounds

Definitive Identification: Olive-green upperparts, bright yellow underparts, and an extensive black hood make males unmistakable. White tail spots and the dark loreal spot distinguish female Hooded Warblers from other similar species.

Similar Species: Female Hooded Warblers resemble female Wilson's Warblers (*Cardellina pusilla*). Wilson's Warblers, however, lack white tail spots and the dark loreal spot, and have olive cheeks instead of the Hooded Warbler's yellow cheeks. Male Hooded Warblers resemble Kentucky Warblers (*Geothlypis formosa*) but have a black throat, a longer tail with white outer feathers and more extensive yellow on the face (Dunn and Garrett 1997).

Associated Species: Within appropriate upland hardwood forest types, Hooded Warblers can occur with the following Species of Greatest Conservation Need: Yellow-billed Cuckoo (*Coccyzus americanus*), Acadian Flycatcher (*Empidonax vireescens*), Least Flycatcher (*Empidonax minimus*), Wood Thrush (*Hylocichla mustelina*), Cerulean Warbler (*Setophaga cerulea*), Worm-eating Warbler (*Helminthos vermivorum*), and Kentucky Warbler.

State Distribution and Abundance: The Hooded Warbler is an uncommon breeding resident in the southern two-thirds of the state, mostly south of a line from St. Croix to Portage to Manitowoc counties (Bielefeldt and Rosenfield 2006). Highest known concentrations of this species occur in the Baraboo Hills and the northern and southern units of the Kettle Moraine State Forest. In recent years Hooded Warblers in Wisconsin have been documented as far north as Polk, Burnett, Marinette, and Florence counties. Distribution information for this species may not reflect its full extent in Wisconsin, because many areas of the state have not been thoroughly surveyed.



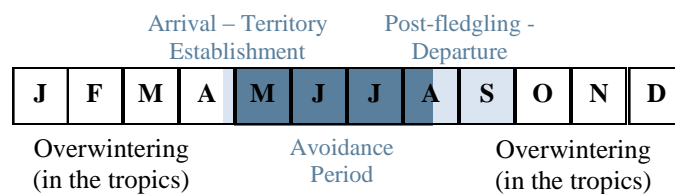
Global range map for Hooded Warbler.
(NatureServe 2013)

Global Distribution and Abundance: The Hooded Warbler’s summer range extends eastward from southwestern Missouri, southeastern Oklahoma, and eastern Texas; south to southern Louisiana, southern Mississippi, southern Alabama, the panhandle of Florida, and southern Georgia; north to central New York, southern Ontario, northern Ohio, central Indiana, southern Michigan, northern Illinois, and southern Wisconsin (Chiver et al. 2011). Within this range, highest densities occur in the Gulf States from eastern Texas to Alabama, and locally in eastern Tennessee, eastern Kentucky, and West Virginia (Sauer et al. 2008).

The winter range extends primarily from eastern Mexico south to Belize. Hooded Warblers also winter regularly in Bermuda and throughout the Caribbean (Dunn and Garrett 1997, Chiver et al. 2011).

Diet: Hooded Warblers are primarily insectivorous, and prefer adult and larval forms (caterpillars) of butterflies and moths (*Lepidoptera*), grasshoppers (*Orthoptera*), beetles (*Coleoptera*), and small spiders (*Araneae*) (Chiver et al. 2011).

Reproductive Cycle: Hooded Warblers arrive in Wisconsin from late April to early June. Initial nest-building begins in mid-May, and nestlings are present from early June to early August (Robbins 1991, Bielefeldt and Rosenfield 2001). This species departs Wisconsin from mid-August to late September (Robbins 1991, Bielefeldt and Rosenfield 2006).



Ecology: The Hooded Warbler nests and forages in the shrubby understory of upland forest stands (Bielefeldt and Rosenfield 2001, Kilgo 2005, Chiver et al. 2011). In Wisconsin and elsewhere, this species nests in the dense patches of shrubs or saplings found beneath canopy gaps (Kilgo 2005, Bielefeldt and Rosenfield 2006). Nests are often near the edges of vegetation (Chiver et al. 2011). Nest substrates documented in Wisconsin include blackberry/raspberry thickets (*Rubus* spp.), arrow-wood (*Viburnum rafinesquianum*), prickly gooseberry (*Ribes cynosbati*), and common buckthorn (*Rhamnus cathartica*) (Bielefeldt and Rosenfield 2006). Four nests in the Baraboo Hills were in maple-leaved viburnum (*Viburnum acerifolium*) and seedlings of sugar maple (*Acer saccharum*) and white ash (*Fraxinus Americana*; Mossman and Lange 1982).

Female Hooded Warblers build compact nests 0.3-1.4 m (1-4.6 ft) above ground (Chiver et al. 2011). Nests are composed of soft bark strips, plant fibers, fine grasses, down, and dry catkins, and are camouflaged by a bulky outer layer of dead leaves (Baicich and Harrison 1997, Chiver et al. 2011). Female Hooded Warblers typically lay and incubate two to five eggs, with an average clutch size of four (Bielefeldt and Rosenfield 2006). Incubation lasts 12 days, with chicks fledging eight to nine days after hatching and remaining with parents for an additional four to five weeks (Baicich and Harrison 1997, Chiver et al. 2011). This species frequently raises two broods (Baicich and Harrison 1997, Chiver et al. 2011). Most individuals depart the breeding grounds and move south to the Gulf Coast of the U.S., then across the Gulf of Mexico, and continue south to Mexico and Central America. This species also winters regularly in the Bahamas, Greater Antilles, and Bermuda (Dunn and Garrett 1997).

Natural Community Associations (WDNR 2005, WDNR 2009):

Significant: [southern mesic forest](#), [southern dry-mesic forest](#)

Moderate: none

Minimal: none

Habitat: The Hooded Warbler is an area-sensitive species in Wisconsin with estimated minimum size requirements ranging from 250-1500 acres (Blake and Karr 1984, Temple 1988, Mossman and Hoffman 1989). The species breeds in upland forest types with dense shrubs, saplings, and brambles (Mossman and Lange 1982, Kilgo 2005, Chiver et al. 2011). The Hooded Warbler is found in small forest openings (0.07-2.5 acres) created by logging, fire, roads, wind events, and occasionally insect infestations (Mossman and Lange 1982, Moorman et al. 2002, Kilgo 2005, Chiver et al. 2011). In Wisconsin, this species favors mesic maple (*Acer* spp.) forests and dry-mesic oak (*Quercus* spp.) forests. They have also been documented in the Kettle Moraine State Forest using conifer plantations and conifer/hardwood edges. The conifer stands at this property had been thinned by 40-60% of planting stock, which allowed deciduous-shrub understories to develop beneath the conifer canopy (Mossman and Lange 1982, Bielefeldt and Rosenfield 2006). In southeastern Wisconsin, Bielefeldt and Rosenfield (2001) recorded nest sites in mid-age (26-34 cm [10-13 in] DBH) and mature (48-64 cm [19-25 in] DBH) deciduous forest stands – composed of red oak (*Quercus rubra*), white oak (*Q. alba*), black oak (*Q. velutina*), bur oak (*Q. macrocarpa*), and shagbark hickory (*Carya ovata*) – as well as 25-60 year old stands of red (*Pinus resinosa*) and/or white pine (*P. strobus*) in various size classes (20-46 cm [8-18 in] DBH).



Photos (left to right): Hooded Warbler habitat in Wisconsin a) in a hardwood forest with a well-developed understory, Walworth County, R. Staffen, Wisconsin DNR; b) in dry mesic forest along a river in Dunn County, © B. Collins; and c) in planted red pine with a semi-open canopy and thick understory of mostly non-native species in Waukesha County. D. Feldkirchner, Wisconsin DNR

Threats: Forest fragmentation and subsequent increases in predation and Brown-headed Cowbird parasitism are likely detrimental to the Hooded Warbler (Brittingham and Temple 1983, Rush and Stutchbury 2008). Parasitism rates have been as high as 44% in Wisconsin (Bielefeldt and Rosenfield 2001) and 75% in Illinois (Chiver et al. 2011). Overbrowsing by deer may suppress populations locally by reducing the shrub layer available for nesting (WDNR 2005). Deforestation of tropical winter habitats is also a concern (Chiver et al. 2011).

Climate Change Impacts: Potential impacts of climate change include an increase in suitable Hooded Warbler habitat in Wisconsin and Michigan, and a northward range expansion along the eastern U.S. coast, accompanied by a decrease in the Atlantic Coast, on the Gulf coast, and in the Appalachians (Matthews et al. 2004).

Survey Guidelines: Persons handling Hooded Warblers must possess a valid [Endangered and Threatened Species Permit](#). If surveys are being conducted for regulatory purposes, survey protocols and surveyor qualifications must first be approved by the Endangered Resources Review Program (see *Contact Information*). Area searches are effective for surveying Hooded Warblers in forest stands < 100 acres. Survey the entire area that contains suitable Hooded Warbler nesting habitat (see “Habitat” section) by walking slowly throughout the area and stopping occasionally to listen for Hooded Warbler vocalizations. Point counts can be used for stands > 100 acres, and require that the observer stand in one spot for 10 minutes and record all Hooded Warblers seen or heard within a 100 m (330 ft) radius. Point-count stations should be placed a minimum of 250 m (820 ft) apart. For either the area-search or point-count method, record the following data: date, location (GPS waypoint in datum WGS84, Decimal Degrees), all Hooded Warblers seen or heard, numbers of pairs and juveniles, behavioral observations such as courtship displays or food carries, and presence of other Species of Greatest Conservation Need at the site. Whenever possible, also map the approximate territory boundaries.

Carry out surveys between May 20 and July 4, preferably 10 days apart, and including at least one survey less than one week prior to any proposed project activity that may impact hooded warblers (see *Screening Procedures*). Begin surveys within 15 minutes of sunrise and complete them within four hours, or no later than 10 am. Conduct surveys during appropriate weather, i.e., no fog, rain, or wind > 10 mph (Ralph et al. 1993). Personnel conducting surveys must be able to identify Hooded Warbler by sight and sound. At least three surveys conducted with the above protocol and yielding negative results are needed to determine that the species is not present at a site for the purposes of these guidelines.

Summarize results, including survey dates, times, weather conditions, number of detections, detection locations, and behavioral data and submit via the WDNR online report: <<http://dnr.wi.gov>, keyword “rare animal field report form”>.

Management Guidelines

The following guidelines typically describe actions that will help maintain or enhance habitat for the species. These actions are not mandatory unless required by a permit, authorization or approval.

Hooded Warbler conservation in Wisconsin requires managing for a shrubby understory within upland forest stands > 250 acres. Focus conservation efforts within appropriate ecological landscapes, including [southeast glacial plains](#), [western coulee and ridges](#), [central Lake Michigan coastal](#), and [forest transition](#) (WDNR 2005). Within these landscapes, key conservation sites include the Baraboo Hills (Mossman and Lange 1982), Kettle Moraine State Forest (Volkert 1992), and southeastern counties.

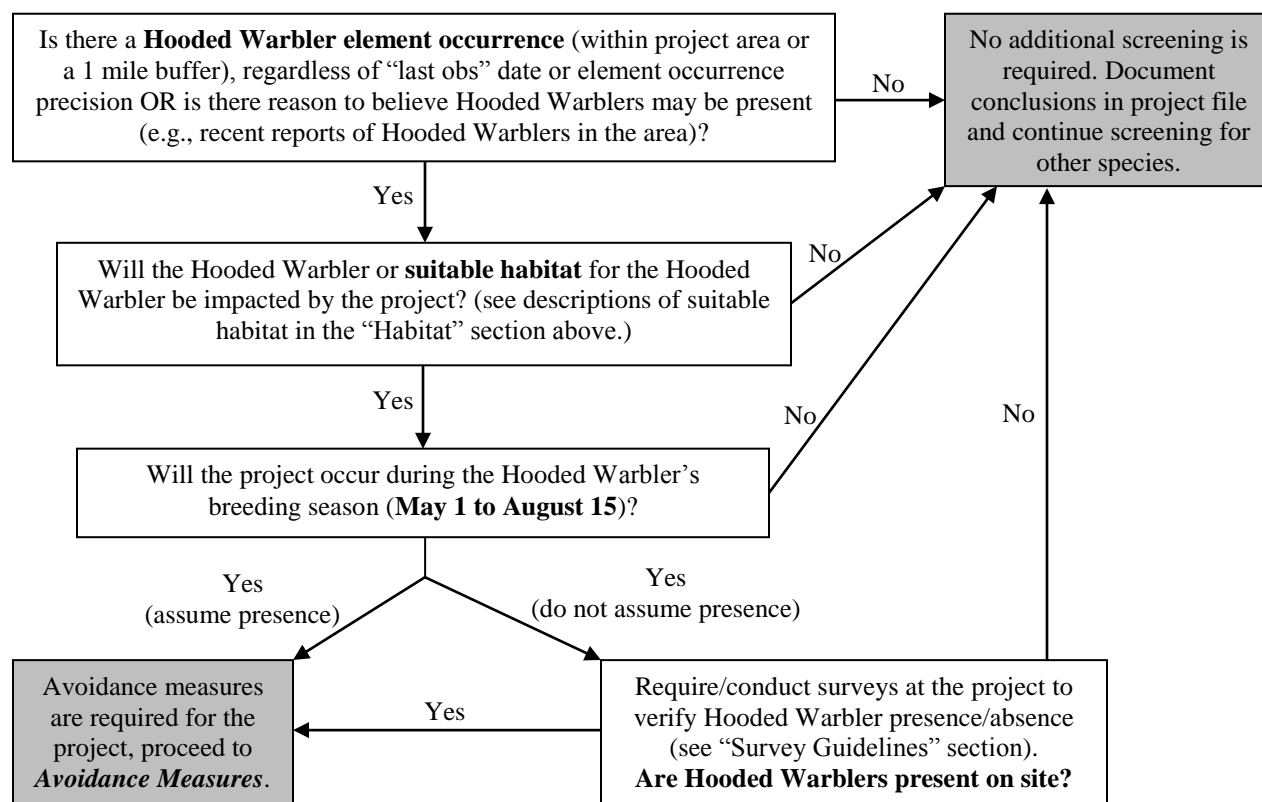
Suitable breeding habitat has the following components: 1) extensive upland forest tract, possibly 250 acre area requirement, 2) dense understory of shrubs, saplings, and brambles, and 3) proximity to small (0.07-2.5 acres) canopy openings. Increase overall site suitability for this species by promoting a dense understory and well-developed ground cover in large tracts of forest. In managed

stands with a minimal understory shrub layer, timber harvesting techniques that result in canopy gaps (i.e., single tree selection, group harvest) can increase the understory shrub layer. Deer browse can severely limit habitat in some areas for this species, and in such areas consideration should be given to lowering deer densities or otherwise protecting habitats from browse. Establish corridors > 100 m (330 ft) wide between existing forest stands to increase forest connectivity (DAI 2008).

Screening Procedures

The following procedures must be followed by DNR staff reviewing proposed projects for potential impacts to the species.

Follow the “Conducting Endangered Resources Reviews: A Step-by-Step Guide for Wisconsin DNR Staff” document (summarized below) to determine if Hooded Warbler will be impacted by a project (WDNR 2012):



Avoidance Measures

The following measures are specific actions required by DNR to avoid take (mortality) of state threatened or endangered species per Wisconsin's Endangered Species law (s. 29.604, Wis. Stats.) These guidelines are typically not mandatory for non-listed species (e.g., special concern species) unless required by a permit, authorization or approval.

According to Wisconsin's Endangered Species Law (s. 29.604, Wis. Stats.), it is illegal to take, transport, possess, process, or sell any wild animal on the Wisconsin Endangered and Threatened Species List (ch. NR 27, Wis. Admin. Code). Take of an animal is defined as shooting, shooting at, pursuing, hunting, catching or killing.

If *Screening Procedures* above indicate that avoidance measures are required for a project, follow the measures below. If you have not yet read through *Screening Procedures*, please review them first to determine if avoidance measures are necessary for the project.

1. The simplest and preferred method to avoid take of Hooded Warblers is to avoid directly impacting individuals, known Hooded Warbler locations, or areas of suitable habitat (described above in the “Habitat” section and in *Screening Procedures*).

2. If Hooded Warbler impacts cannot be avoided entirely, avoid impacts during the **breeding season (May 1 to August 15)**.
3. If Hooded Warbler impacts cannot be avoided, please contact the Natural Heritage Conservation Incidental Take Coordinator (see *Contact Information*) to discuss possible project-specific avoidance measures. If take cannot be avoided, an [Incidental Take Permit or Authorization](#) is necessary.

Additional Information

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Linked Websites:

- Cornell Lab of Ornithology All About the Birds: <http://www.allaboutbirds.org/guide/hooded_warbler/id>
- Natural Communities of Wisconsin: <<http://dnr.wi.gov>, key word "natural communities">
- Rare Animal Field Report Form: <<http://dnr.wi.gov>, key word "rare animal field report form">
- Wisconsin Bird Conservation Initiative All Bird Conservation Plan: <<http://www.wisconsinbirds.org/plan/species/howa.htm>>
- Wisconsin Wildlife Action Plan: <<http://dnr.wi.gov>, key word "Wildlife Action Plan">
- Wisconsin Endangered and Threatened Species: <<http://dnr.wi.gov>, key word "endangered resources">
- Wisconsin Endangered and Threatened Species Permit: <<http://dnr.wi.gov>, key word "endangered species permit">
- Wisconsin Natural Heritage Inventory Working List Key: <<http://dnr.wi.gov>, key word "Natural Heritage Working List">

Funding

- Natural Resources Foundation of Wisconsin: <<http://www.wisconservation.org/>>
- USFWS State Wildlife Grants Program: <<http://wsfrprograms.fws.gov/subpages/grantprograms/swg/swg.htm>>
- Wisconsin Natural Heritage Conservation Fund
- Wisconsin DNR Division of Forestry

Contact Information (Wisconsin DNR Species Experts for Hooded Warbler)

- [Mike Mossman](mailto:michael.mossman@wi.gov), WI Department of Natural Resources, Bureau of Integrated Science Services (608-221-6346, michael.mossman@wi.gov)

- [Kim Grveles](#), WI Department of Natural Resources, Bureau of Natural Heritage Conservation (608-264-8594, kim.grveles@wisconsin.gov)

Endangered Resources Review Program Contacts

- General information (608-264-6057, DNREReview@wisconsin.gov)
- [Rori Paloski](#), Incidental Take Coordinator, Wisconsin DNR, Bureau of Natural Heritage Conservation (608-264-6040, rori.paloski@wi.gov)

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